



Immunological Indicators of Blood and Saliva in Diseases of the Oral Cavity Mucosa in Patients with Covid-19 Complicated by Stage I and II AG

1. Razikova Dilnoza Kadirovna

Received 2nd Jan 2023,
Accepted 3rd Feb 2023,
Online 11th Mar 2023

¹ Bukhara State Medical Institute

Abstract: Relevance of the topic: Viral diseases on the basis of arterial hypertension in recent years are one of the pressing problems of Medicine. According to experts from the World Health Organization, 80% of infectious diseases are called by viruses and certain changes occur in the mucous membrane of the oral cavity. In December 2019, a new etiological agent for COVID-19 ("coronavirus disease 2019"), SARS-CoV-2, was found to be a new coronavirus in Wuhan, China. As of March 2020, more than 187 countries have reported COVID-19. In this regard, the use of modern methods of timely and early diagnosis of COVID-19 infection, the improvement of treatment and preventive measures, the Prevention of deaths remain priority areas of practical medicine.

Throughout the world, it remains one of the important tasks to carry out a series of studies aimed at preventing complications and finding solutions to these problems in patients infected in connection with the introduction of COVID-19 in the post-pandemic period. In recent years, there has been an increase in incidence among the population with different stages of arterial hypertension. Such pathologies of the cardiovascular system provoke a violation of the internal balance of the body and its adaptation to the conditions of vital activity of organs and tissues, through which complex complexes of shifts and reactions that gradually go beyond the physiological level are formed, secondary structural changes at the subcellular and cellular level, the formation of interconnected pathological processes.

Currently, one of the important tasks in dentistry is the finding of a mechanism for controlling the dynamic permanence of the oral cavity internal area of patients with AG. It is known that the barrier function of the saliva is a general biological adaptive reaction and serves as the first echelon that protects the esophagus under conditions of impaired blood circulation system. It follows that in this case, saliva should be considered as a biological liquid that reflects homeostasis processes. But in individuals in which the disease is in a harmonious form, its role and the changes that occur in it are practically not studied. In addition, the study of its homeostatic function AG makes it possible to identify unknown links diseases in existing individuals as well as propose new approaches to its treatment in individuals with COVID-19.

At the latest, the role of cytokines in inflammatory processes of various etiologies is actively studied, since they are diagnostic and prognostic markers of pathological processes associated with inflammation. Changes in the level of inflammatory and anti-inflammatory cytokines in odontogenic inflammation reflect the body's systemic response to the entire inflammatory process. Perhaps, in connection with this, in addition to immunoglobulin, enzyme and other directions in the oral fluid, cytokines began to be studied that reflect the resistance of oral tissues to various influences, as well as indirectly signaling the activity of monocytes-macrophages, lymphocytes in them.

In the generalization of the inflammatory process in the tissues of Parodont, one of the main cytokines is dated il-1. It acts on endothelial cells, increasing the synthesis of adgesia molecules for neutrophils and monocytes, enabling their mobilization in parodont tissues.

It is known that il-6 acts as an activator of the hypothalamo-hypophysar adrenal glands, while glucocorticoids control its secretion according to the principle of negative feedback. Il-6 secretion is amplified under the action of stress and guided by catecholamines on the principle of positive feedback. In inflammation, cytokines such as a tumor necrosis factor (FNO), il-1, and il-6 are sequentially secreted. Then il-6 stops the secretion of FNO and il-1, begins to activate the formation of acute phase proteins of inflammation with the liver and provoke the system of the hypothalamo-hypophysar-adrenal glands, which allows you to control the inflammatory process. Since blood have a single source of development in the form of connective tissue, in diseases of various etiologies, structural changes occur primarily precisely in connective tissue-rich members, the order of which includes and parodont.

The role of the mucous membrane in the implementation of immune function is explained by the fact that a large part of antigens overcomes the physiological barrier and falls. This fact, most likely, explains the importance of the mucous membrane as part of the epithelial internal immune system. Being considered a gateway for antigens, the mucous membrane is identified as an important part of the immune system throughout the body. The great importance of various immunological indicators has been noted for the Prevention of tissue diseases surrounding the tooth in oral fluid. Of great importance among them are the inflammatory cytokines, as well as latoferrin and the stressor hormone-cortisol. The determination of these indicators makes it possible to draw conclusions about the state of local protective mechanisms in the oral cavity. In case of damage to the mucous membrane, il-1 has a wound-repairing effect, enhances the bactericidal effect of leukocytes, provokes the synthesis of proteoglycans and collagen.

Lactoferrin is considered an important organization of the non-specialized antimicrobial protective system of mucus, has bacteriostatic properties due to the accumulation of Gram-negative and Gram-negative bacteria. In addition, lactoferrin reflects the degree of inflammatory reactions in the patient's body. This protein is synthesized by leukocytes, mucosal epithelial cells, and therefore can be detected in various secretions, including saliva [1.3.5.6.7.9.11.13].

Analysis of the results from the studies testifies to a 1.6-fold increase in the il-1 concentration in the blood of patients with covid-19, which is complicated by Phase I AG, compared to the indicators in patients with the COVID-19 existing control group. More pronounced changes have been reported compared to il-1 levels in oral fluid, with patients with covid-19 complicated by Phase I AG having a concentration 2 times greater than the original rate. In the blood of patients with covid-19, which was complicated by Phase II AG, il-1 levels were 2.3 times higher than the initial rate. Similar changes to the il-1 indicator in oral fluid of patients with covid-19 complicated by Phase II AG were noted, with its concentration 43 times that of the initial one.

These comparative indicators can be clearly seen, where the factors of the resistance of the body in the blood and oral fluid and the results of the amount of cortisol are given. The difference between groups is evident, with a reliable difference recorded between groups ($R < 0.05$ - $R < 0.01$).

This condition reflects the intensive inflammatory processes occurring in the cells of the oral mucosa. It is worth mentioning that with covid-19, which is complicated by stage I and II AG, high values of il-1 in chronic inflammatory diseases are controlled by the receptor antagonist and its autoantibodies, and mean a decrease in the amount of antagonist caused by chronic course of the disease. In doing so, they limit the full effect of cytokine while keeping the inflammatory process at a chronic level, without allowing it to proceed to an acute inflammatory process.

From the cited results of the study, it can be seen that the increase in the amount of il-6 we observed in the blood of patients with covid-19, which is complicated by stage I and II AG, compared to the indicators of patients in the existing control group of COVID-19, is often observed in corticosteroid cancellation syndrome, as well as in severe inflammatory processes

A distinct dynamics has been noted in oral fluid compared to il-6 rates, where group I patients reported a 33% decrease in oral fluid il-6 compared to comparison group results, and 59% in Group II patients.

Analysis of the results from the studies indicates that lactoferrin levels in oral fluid of patients with covid-19 complicated by Phase I AG increased 1.5 times compared to indicators obtained from patients with the COVID-19 existing control group and 1.8 times in patients with covid-19 complicated by Phase II AG.

To determine the state of stress in the patients examined, we studied the level of cortisol in the oral fluid. The results of the study showed that cortisol levels in oral fluid were 1.4 times higher than the initial rate in patients with stage I AG-complicated COVID-19 and 1.5 times greater in patients with Stage II AG-complicated COVID-19.

From the results obtained from the studies, it is precisely the cytokines that are considered important in the development of cell damage and immune response loading. Inflammatory activity is reflected in oral fluid by peptides, specifically lactoferrin and cortisol [2.4.6.8.10.12.14].

Thus, the identified data indicates a shift in the blood cytokine balance, especially in the oral fluid, in the direction of inflammation, and shows an important place of cytokine-dependent mechanisms in the development of the inflammatory process against the background of complications with stage I and II AG.

LITERATURE USED

1. Хабибова Н.Н., Разикова Д.К., Олимова Д.В. Значение защитной системы ротовой полости у больных перенесших коронавирус на фоне воспаления сопр сочетанной артериальной гипертензией // Тиббиётда янги кун. – 2022. – № 6 (44). – С. 22-26. (14.00.00; № 22)
2. Хабибова Н.Н., Разикова Д.К., Олимова Д.В. Артериал гипертензия билан асоратланган коронавирусли беморларда оғиз бўшлиқ қавати ҳолатини баҳолаш ва уни даволаш тактикаси // Биология ва тиббиёт муаммолари. – 2022. – № 4 (137). – С. 194-197. (14.00.00; № 19)
3. Хабибова Н.Н., Разикова Д.К. Оғиз бўшлиғи шиллиқ қаватининг сурункали яллиғланиши фониди иккала босқичдаги артериал гипертензия билан асоратланган COVID-19 мавжуд беморларда эндотелиал дисфункцияни комплекс даволаш самарадорлиги // Журнал стоматологии и краниофациальных исследований. – 2022. – № 4. – С. 42-47. (14.00.00)

4. Разикова Д.К., Хабибова Н.Н. Артериал гипертензия билан асоратланган COVID-19 мавжуд беморларнинг оғиз бўшлиғи тўқималар ҳолатининг ўзига хос клиник хусусиятлари // Журнал стоматологии и краниофациальных исследований. – 2022. – № 4. – С. 48-53. (14.00.00)
5. Xabibova N.N., Razikova D.K. Evaluation of the state of the oral mucosa and tactics of its treatment in patients with coronavirus infection complicated by arterial hypertension // American Journal of Medicine and Medical Sciences. – 2022. – № 12 (9). – С. 920-923. (Based on Google Scholar Metrics(June 2017))
6. Разикова Д.К., Хабибова Н.Н. Значение системы защиты полости рта у больных артериальной гипертензией, вызванной коронавирусом // Журнал медицина и инновации. – 2022. – № 3 (7). – С. 412-419.
7. Razikova D.K, Xabibova N.N. Methods for assessment and improvement of the condition of the mucosa of the oral cavity in patients with coronavirus complicated with cardiovascular disease // Annals of the Romanian Society for Cell Biology. – 2021. – Т. 25, № 1. – С. 6668 - 6673.
8. Razikova D.K. Conditions of the oral mucosa and development of therapeutic tactics in patients infected with COVID-19 coronavirus on the background of arterial hypertension // International Conference on Modern Medicine and Issues of Ecological Management. – 2022. – С. 113-115.
9. Razikova D.K. Indicators of the hemostasis system in the blood of patients with COVID-19 complicated hypertension of both stages // International Conference on Multidimensional Research and Innovative Technological Analyses. – 2022. – С. 179-181.
10. Хабибова Н.Н., Разикова Д.К. Оценка защитной системы ротовой полости у больных, перенесших коронавирус на фоне воспаления СОПР сочетанной артериальной гипертензией // Талабалар ва ёш олимлар III халқаро илмий-амалий онлайн анжумани материаллари тўплами – Бухоро, 2021. – С. 165-166.
11. Хабибова Н.Н., Разикова Д.К. Сердечно-сосудистые поражения при инфекции COVID-19 // “Ўзбекистоннинг умидли ёшлари” мавзусидаги 4-сон Республика илмий талабалар, магистрлар ёш тадқиқотчилар ва мустақил изланувчилар учун онлайн конференцияси материаллари тўплами. Тошкент. – 2021. – № 4. – С. 129-131.
12. Razikova D.K. The condition of tissues in the oral cavity of patients with complications of arterial hypertension COVID-19 // International Conference on Research Identity, Value and Ethics. Hosted from USA, Oktober 28th 2022 – 2022. – С. 92-94.
13. Razikova D.K. Methods for Determining Fibrinolytic Activity of the Endothelium of the Vascular Wall in The Mucous Membrane of the Oral Cavity // International Multidisciplinary Conference "Innovative Research on Modern Scientific World". – 2022. – С. 223-224.
14. Разикова Д.К., Хабибова Н.Н. Методика диагностики лечения заболеваний слизистой оболочки полости рта у больных с COVID-19 // Методические рекомендации. – Бухара, 2022. – 24 с.